THE EFFECT OF LEMONGRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA

Dissertation submitted to

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY
CHENNAI

IN PARTIAL FULFILMENT OF REQUIREMENT
FOR THE AWARD OF DEGREE OF

MASTER OF SCIENCE IN NURSING

APRIL 2014

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Certified that this is the bonafide work of

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_____ _____

INTERNAL EXAMINER **EXTERNAL EXAMINER**

DECLARATION

I 301211708 hereby declare that this dissertation entitled **"THE EFFECT OF LEMONGRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA**" has been prepared by me under the guidance and direct supervision of **Prof. R. Punithavathi M.Sc. (N)** Professor cum Principal, Thanthai Roever College of Nursing, Perambalur, as a requirement for partial fulfillment of **M.Sc. Nursing** degree course under **The Tamil Nadu Dr. M.G.R. Medical University, Chennai – 32.** This dissertation had not been previously formed and this will not be used in future for award of any other degree/ diploma. This dissertation represents independent original work on the part of the candidate.

Place: Perambalur
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THE EFFECT OF LEMON GRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA.

ABSTRACT

INTRODUCTION: Hypertension is the silent killer disease of today. Lemon grass decoction is one of the interventions found to reduce the blood pressure for hypertension. This study aimed to evaluate the effect of lemon grass decoction on reduction of blood pressure among individuals with hypertension in selected community area, Kerala.

OBJECTIVE: The main objective of the study was to assess the effectiveness of lemon grass decoction on reduction of blood pressure among individuals with hypertension in the experimental group.

METHOD: The research design was true experimental pre-test and post-test control group design. Sixty individuals with hypertension were recruited by simple random sampling technique into two groups. Experimental group (n=30) received 250 ml of lemon grass decoction for one time a day for 14 days and control group (n=30) were not received intervention for 14 days.

RESULT: Statistical findings revealed that the post-test mean systolic blood pressure was 129.33 in experimental group and 142.00 in control group. Thus mean systolic blood pressure of experimental group was less than control group. The obtained‘t’ value was 3.840, significant at 0.001 level.

CONCLUSION: The use of lemon grass decoction is effective in reduction of blood pressure among individuals with hypertension.

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CHAPTER I

INTRODUCTION

Hypertension is a chronic illness, is a growing condition in our society due to life style changes. Once diagnosed its control basically depends on adapting a healthy lifestyle and therapeutic compliance. It is a “neglected disease” according to a report released by the Institute Of Medicine. The cause of death in one of 6 adults and the greatest single risk factor for death from cardio vascular disease is hypertension.

Worldwide, raised blood pressure is estimated to cause 7.5 million deaths, about 12.8% of the total of all annual deaths. Globally, the overall prevalence of raised blood pressure in adults aged 25 years and over was around 40% in 2008. The proportion of high blood pressure fell modestly between 1980 & 2008. However, because of population growth& ageing, the number of people with hypertension rose from 600 million in 1980 to 1 billion in 2008 (WHO (2011), Global status Report on Non- Communicable Diseases, 2010).

Lemon grass, a native herb from temperate and warm regions such as India, is widely used in Asian cooking, for its aromatic citrus flavor with a trace of ginger. Cymbopogon Citratus is the scientific name and is member of a species of grass that grows to as high as 1 meter with leaves of 1 to 1.5 centimeters in width that grows from a stalk of about 30 to 80 cm long with bulbous lower end.

Research shows, lemon grass leaves contains anti- microbial and anti- bacterial properties. The content is particularly useful in treating infections of the stomach, intestines, urinary tract and wounds. Lemon grass is also known efficacious as a diuretic, cramps reliever, and anti rheumatic. In

addition, the content of analgesic compounds in lemon grass oil may help to relieve headache, joint pain and muscle pain. Lemon grass leaves are employed by the Cuban populations as an antihypertensive and anti-inflammatory folk medicine.

Lemon grass has been known to promote blood circulation; people who suffer from high blood pressure may find that drinking lemon grass tea can reduce blood pressure (Montala 2006). The roots of lemon grass yield a decoction used as a diuretic (Quisumbing 1978). The efficacy of this diuretic action of the herb is their ability to reduce blood volume by increasing urine output thereby a resultant decrease in blood pressure (Cecil et al., 2004). Lemon grass herb contains citral that detoxifies the body by increasing the quantity and frequency of urination.

This is supported by the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure, seventh report in 2003.Where in it recommended the use of diuretics as a first-line antihypertensive therapy for hypertensive individuals.

BACKGROUND OF THE STUDY

Hypertension is the silent killer disease of today. For reducing blood pressure, many pharmacological and non- pharmacological approaches were developed.

The overall incidence of hypertension in India is estimated to be 66 million persons. The disease progression due to low income, chronic illness, multiple prescriptions and barriers to follow pharmacological management. Without side effects and cost individuals can use folk medicine as regularly.

National Program for Prevention and Control of Cancer, Diabetes, Cardio vascular diseases, Stroke developed for the control of hypertension. It was implemented in 21states, 100 districts, 700 community health centers and 20,000 sub centers. Through that mass health education provided and screened persons above the age 30 years. (Annual report to the people of Health, Govt. of India, Ministry of Health and Family welfare Sept 2010).

Herbalism is a traditional medicinal practice, based on the plants and plant extracts. Herbal medicines can serve as a substitute treatment for certain diseases including hypertension. Instead of pharmacological management non- pharmacological management is better due to fewer side effects.

NEED FOR THE STUDY

The prevalence of hypertension is increasing in trend. As most of the urban areas have to access health facilities the hidden mass of hypertension in the community can be detected and treated. But majority of the rural population in India have inadequate access to healthcare. Half of the Out Patient consultations are indigenous and the private practitioners are not practicing regular screening for hypertension.

The National High Blood Pressure Education Program (NHBPEP) established in 1972, the goal of the program was to reduce death and disability related to high blood pressure through public education. In the last 2 decades, the number of persons with hypertension who are aware of their condition has increased dramatically. In addition the percentage of persons with hypertension who are on medication and controlling their condition also has improved substantially. The treatment of hypertension is still inadequate and are empiric and fails to reverse all of the risk for diseases (Burt VL).

However the programs implemented in the nation, the risk factors are not under control.

Ian Ray C. Caluscusin (2010) found that lemon grass decoction has diuretic effect, which promote frequent urination, thus it reducing blood pressure. This study aims to evaluate the claimed therapeutic effect of intake of lemon grass decoction in lowering blood pressure. When it is proven to be effective, lemon grass decoction could be used as an alternative maintenance medication among hypertensive individuals which is easy to prepare, affordable, and readily available.

STATEMENT OF THE PROBLEM

An experimental study to assess the effectiveness of lemongrass decoction in reduction of blood pressure among individuals with hypertension in selected community area, Kerala.

OBJECTIVES

1) To assess the level of blood pressure among individuals with hypertension.

2) To assess the effectiveness of lemon grass decoction in reduction of blood pressure among individuals with hypertension in experimental group and control group.

3) To find association between post-test level of blood pressure and selected demographic variables of experimental group.

HYPOTHESES

H_1 there will be significant reduction in the level of blood pressure after intake of lemon grass decoction among individuals with hypertension.

H_2 there will be significant association between post-test level of blood pressure and selected demographic variables of individuals with hypertension who consumed lemon grass decoction.

OPERATIONAL DEFINITIONS

Effectiveness

It is an outcome of any process. In this study it refers reduction in the level of blood pressure.

Lemon grass decoction

Lemon grass is an aromatic tropical grass with clumped, bulbous stems that ultimately become leaf blades.

Lemon grass decoction is prepared by washing the lemon grass in water, soaking for 15 minutes followed by boiling of 20 leaves, in one liter of water for 20 minutes, cooled and strained 250ml is given to each individual once a day for 14 days.

Hypertension

For this study it refers to elevated systolic blood pressure above 130 mm Hg.

ASSUMPTIONS

Lemon grass decoction decreases blood pressure.

Lemon grass is a diuretic it has the ability to reduce blood volume by increasing urine output there by reduces the blood pressure.

DELIMITATIONS

Size of the sample is only 60.

Study is done for 4 weeks only.

Limited to one setting only.

PROJECTED OUTCOME

The findings of this study will reveal the effectiveness of lemon grass decoction in reduction of blood pressure among individuals with hypertension. If found to be effective, this intervention could be incorporated as one of the nursing measure to reduce high blood pressure.

CHAPTER II

REVIEW OF LITERATURE

Review of literature is a key step in research process. It refers to an intensive evaluative and systemic examination of publications relevant to the research project.

PART- I

a) **Review on studies related to control of blood pressure**

b) **Review on studies related to effect of lemon grass decoction on reduction of blood pressure in individuals with hypertension**

a) **Review on studies related to control of blood pressure**

Aysha Almas et al., (2012) evaluated the knowledge about hypertension in hypertensive patients at 3 tertiary care centres in Karachi, Pakistan. Primary outcome was knowledge about hypertension. Controlled hypertension was present in 323 (72.3) and uncontrolled was present in 124 (27.4). On comparison of knowledge as 9 composite score between uncontrolled and controlled hypertensive, mean score was 21.85 (4.74), 18.67(4.70) (p value; <0,001).The result showed that knowledge about hypertension in hypertensive patients was not adequate and is alarmingly poor in patients with uncontrolled hypertension.

Forman et al., (2012) conducted a study about salt may damage blood vessels and lead to high blood pressure. Research conducted on observational study in which they tracked the sodium intake of 5,556 men and women from the general population of Geroningen, Netherlands.Compared with participants eating the least amount of sodium (about 2,200 mg a day)

and those eating the most (about 6, 200 mg/ day). In the result, 21% more likely to develop high blood pressure.

Jose M. Marin et al., (2012) conducted a study to determine whether Continuous Ambulatory Airway Pressure therapy is associated with a lower risk of hypertension. Prospective cohort study of 21,003 person years of follow-up, 750 cases of incident hypertension were observed. Compared with control, the adjusted Hazard Ratio is lower in patients with Obstructive Sleep Apnea who were treated with CPAP therapy (0.71; 95% CI 0.53-0.94).

Mary M. MC Grane et al., (2010) examined the relationship between intake of milk, milk products and blood pressure management. The Rotterdam study examined hypertension risk in 2245 normotensive elderly subjects (>55yrs of age) who did not use hypertension medicine. At 2 yrs follow-up, hypertension risk was significantly decreased for low-fat dairy consumption people. Report showed that, low-fat dairy may decrease hypertension risk at an older age**.**

Wang et al., (2010) studied the effects of slow abdominal breathing with bio feedback on pre hypertensive individuals in a study. The result showed that slow abdominal breathing alone (the control group) lowered systolic blood pressure by 4.3 mm Hg and did not significantly change diastolic blood pressure. The experimental group resulted in greater reduction of blood pressure; 8.4 mm Hg systolic and 3.9 mm Hg diastolic.

Henry Krum et al., (2009) conducted a study to assess the renal Sympathetic Denervation for treatment of Drug-Resistant hypertension. Eligible patients were on > 3 anti hypertensive drugs and had a baseline systolic blood pressure > 160 mm Hg. At 12 months after the procedure, the mean fall in office systolic blood pressure in the initial renal Denervation group (-28.1 mm Hg ; 95% confidence interval, -3.5.4- -20.7; p< o.oo1),

result showed that renal Denervation provides safe and sustained reduction of blood pressure to 1 year.

Park.Y.H et al., (2009) conducted a study regarding effect of health education and exercise for older adults with hypertension.40 samples were selected randomly and allocated into experimental and control group. Health education and exercise provided to experimental group for 12 weeks. After given the investigation, the experimental group showed decrease systolic blood pressure. Result revealed that education program was effective for lower the blood pressure.

Ried et al., (2009) analyzed the effect of Cacao- chocolate to decrease blood pressure. Polyphenol is contained Cocao, particular polyphenols called flavanols that increase formation of endothelial nitric oxide, which promotes vasodilation and therefore decrease blood pressure. 9 trials used 50-70% cacao, and 6 trials used flavanol dosage (found in chocolate) from 30-1000mg. The pooled result showed that for decrease in systolic blood pressure of 5.0 mm Hg and a decrease in diastolic blood pressure of 2.7 mm Hg. So cacoa – rich chocolate food do have an anti hypertensive effects.

Charles et al., (2008) assessed the effect of Transcendental meditation and muscle relaxation on blood pressure on older African and Americans. For women, the Transcendental meditation technique showed that systolic and diastolic blood pressure decreased 10.4 mm Hg and 5.9mm Hg respectively. For men, systolic diastolic pressures declined as well, 12.7mm Hg and 8.1 mm Hg respectively. The muscle relaxation technique did not show any decrease in blood pressure.

Guo et al., (2008) has conducted study to assess the effectiveness of conventional exercises on reduction of blood pressure. The exercise includes jogging and progressive muscle relaxation techniques. The decrease in blood pressure for this study was approximately 17 mm Hg systolic and 10mm Hg diastolic.

Kawaano et al., (2008) conducted a study regarding magnesium supplementation for reduction of blood pressure.60 subjects were selected for participation of study. Magnesium supplements, 10mmol/day were administered for 20 days. There was an average decrease of 4.3 mm Hg in systolic and 2.3 mm Hg in diastolic blood pressure.

Mori et al., (2008) examined whether dietary Omega-3 fatty acids in fish had independent and addictive effects to weight control on blood pressure in over weight patients with hypertension. There were 4 groups that were created for this study; a daily fish meal diet, a low fat low calorie weight loss program, a low fat low calorie weight loss with daily fish added and a control group. The group that was assigned to eat one daily meal with fish had a decrease in systolic blood pressure by 6.0 mm Hg and 3.0 mm Hg for diastolic. The group that only lost weight had a decrease of 5.5 mm Hg systolic.

Reinhart et al., (2008) determined the effectiveness of garlic on hypertension. The doses that were used for the study ranged from 12.3 mg-2.4gm per day in the form of powder. The result showed that patients with increased blood pressure have reduced systolic blood pressure by 16.3 mm Hg and diastolic reduced by 9.3 mm Hg.

Richard Nahas et al., (2008) conducted a study to assess the effectiveness of acupuncture to reduction of blood pressure. 160 Germans with mild to moderate hypertension were randomized to receive real

acupuncture. Patients with treated by Traditional Chinese Medicine after 6 weeks (22 treatments) real acupuncture led to a 6.4 ± 2.9 mm Hg and 3.7± 2.1 mm Hg greater reduction in systolic and diastolic blood pressure respectively($p<.001$).

Rosenfeldt et al., (2008) conducted a study to analyze the effect of co enzyme, Co Q 10 for reduction of blood pressure. 12 trails and 362 patients in total were analyzed for this study. Result showed that supplementation of 75-360 mg (mostly between 100-150 mg/ dl) of Co Q 10/ daily was sufficient to decrease systolic blood pressure by 16 mm Hg and diastolic blood pressure by 10 mm Hg.

b) Review on studies related to effect of lemon grass on hypertension

Ian Ray C.Caluscusin (2010) conducted a study related to the effect of twice a day intake of lemon grass decoction among hypertensive individuals in Barangay Situbo. The study was conducted in 4 phases as follows: Baseline, Lemon Grass, Wash out and Placebo. Each phase was conducted daily for 4 weeks with a total of 16 weeks period of studied. The results of the 16 weeks period of study showed that the twice a day intake of lemon grass decoction had a significant effect on the mean arterial pressure by acting as a diuretic which was evidenced by frequent urination wherein majority of the respondents manifested this.

Harrison et al., (2008) assessed the effect of lemon grass tea on reduction of blood pressure. The study stated that vascular volume is a primary determinant of arterial pressure over the long term, although the extracellular fluid space is composed of vascular and interstitial spaces, in general, alterations in total extracellular fluid volume are associated with proportional changes of blood volume. So the assumed diuretic action of the

twice a day intake of lemon grass decoction would probably increase the amount of salt and fluid that one would pass out as urine. The volume of the fluid in circulation is reduced, which in effect, reduces the blood pressure.

Montala (2006) conducted a study to assess the effect of lemon grass in reduction of blood pressure. The result showed that the people who suffer from high blood pressure may find that drinking lemon grass tea can reduce blood pressure.

Cecil et al., (2004) conducted a study to detect the effect of lemon grass on hypertension. The study concluded that the efficacy of this diuretic action of the lemon grass is their ability to reduce blood volume by increasing urine output thereby a resultant decrease in blood pressure.

Carbajal et al., (1999) conducted a study on anti hypertensive effect of lemon grass on Cuban population. Lemon grass leaves were employed as an anti hypertensive folk medicine. The result showed that lemon grass has a diuretic as well as anti inflammatory effect when taken orally.

PART- II

Conceptual frame work is a group of related ideas, statements or concepts. The term conceptual model is often used interchangeably with conceptual frame work and sometimes with grand theories, those that articulate a broad range of the significant relationship among the concepts of a discipline (Kozier Barbar 2005).

For this study the conceptual frame work was derived from Roy adaptation theory (1984). According to this theory, Roy's model focuses on the concept of adaptation of the person. Her concepts of nursing, person, health, and the environment are all interrelated to this central concept. She introduced her ideas about 'Adaptation Nursing' as the basis for an integrated nursing curriculum.

The person continually experiences environmental stimuli. Ultimately response is made and adaptation occurs. That response of the person may be either an adaptive or an ineffective response. The adaptive response of the person promotes integrity and helps to achieve the goal of adaptation; thus they achieve survival, growth, reproduction, mastery, person and environmental transformation. Ineffective response fails to achieve or threaten the goals of adaptation. Nurse has a unique goal to assist the person's adaptation effort by managing the environment. The result is attainment of an optimal level of wellness by a person.

SYSTEM

The system is the individuals with hypertension and the environment is the home and working place. Both will have a constant interaction with each other.

INPUT

The adaptive system has inputs as behavioral responses that serve as feedback and control process known as coping mechanisms.

FOCAL STIMULI

The demographic variables like age, sex, education, physical work, income, family history of hypertension, history of smoking, history of alcoholism, dietary pattern, treatment of hypertension, treatment modality (External factors) which precipitates the level of blood pressure and is reflected either as adaptive or maladaptive response. The level of blood pressure differs due to these internal and external factors.

CONTEXTUAL STIMULI

The contextual stimuli include lack of information about hypertension, environment of the home, and treatment, alteration in socialization process.

RESIDUAL STIMULI

The residual stimuli include the beliefs, attitude related to high blood pressure.

COPING PROCESS

Acquired coping mechanisms are developed through strategies such as learning. The experience encountered throughout life contributes to customary responses to particular stimuli.

REGULATOR SUBSYSTEM

The maladaptive level of blood pressure alters the regulator subsystem. The regulator subsystem includes alteration in blood pressure.

COGNATOR SUBSYSTEM

The cognator subsystem alters by the maladaptive level of blood pressure. The alteration in the cognator subsystem can be noted in changes of blood pressure.

After assessing the level of blood pressure in both experimental and control group, lemon grass decoction intervention was carried out for the experimental group. Here the lemon grass decoction intervention was used as the coping mechanism.

ADAPTATION LEVEL

A person’s adaptation level is a constantly changing point, made up of focal, contextual and residual stimuli which represent the person’s own standard of range of stimuli to which one can respond with ordinary adaptive responses.

ADAPTATION PROBLEMS

Adaptation problems are broad areas of concern related to adaptation. This describes the difficulties related to the indicators of positive adaptation.

ADAPTIVE MODES

- **PHYSIOLOGICAL MODE**

  The adaptive response in physiologic mode is the normal blood pressure.

- **SELF- CONCEPT – GROUP IDENTITY MODE**

  The adaptive response in self concept mode is beliefs and feelings about one self.

- **ROLE FUNCTION MODE**

  Role function mode refers to improved performance.

- **INTERDEPENDENCE MODE**

  The adaptive response in interdependent mode is to maintain social integrity.

OUTPUT

The lemon grass decoction intervention may increase the coping pattern which reflects in the reduction of blood pressure and maintenance of good physiological status of individuals with hypertension in experimental group which is assessed by using JNC high blood pressure classification, thus showing adaptive response. The individuals with hypertension in control group showed maladaptive response.

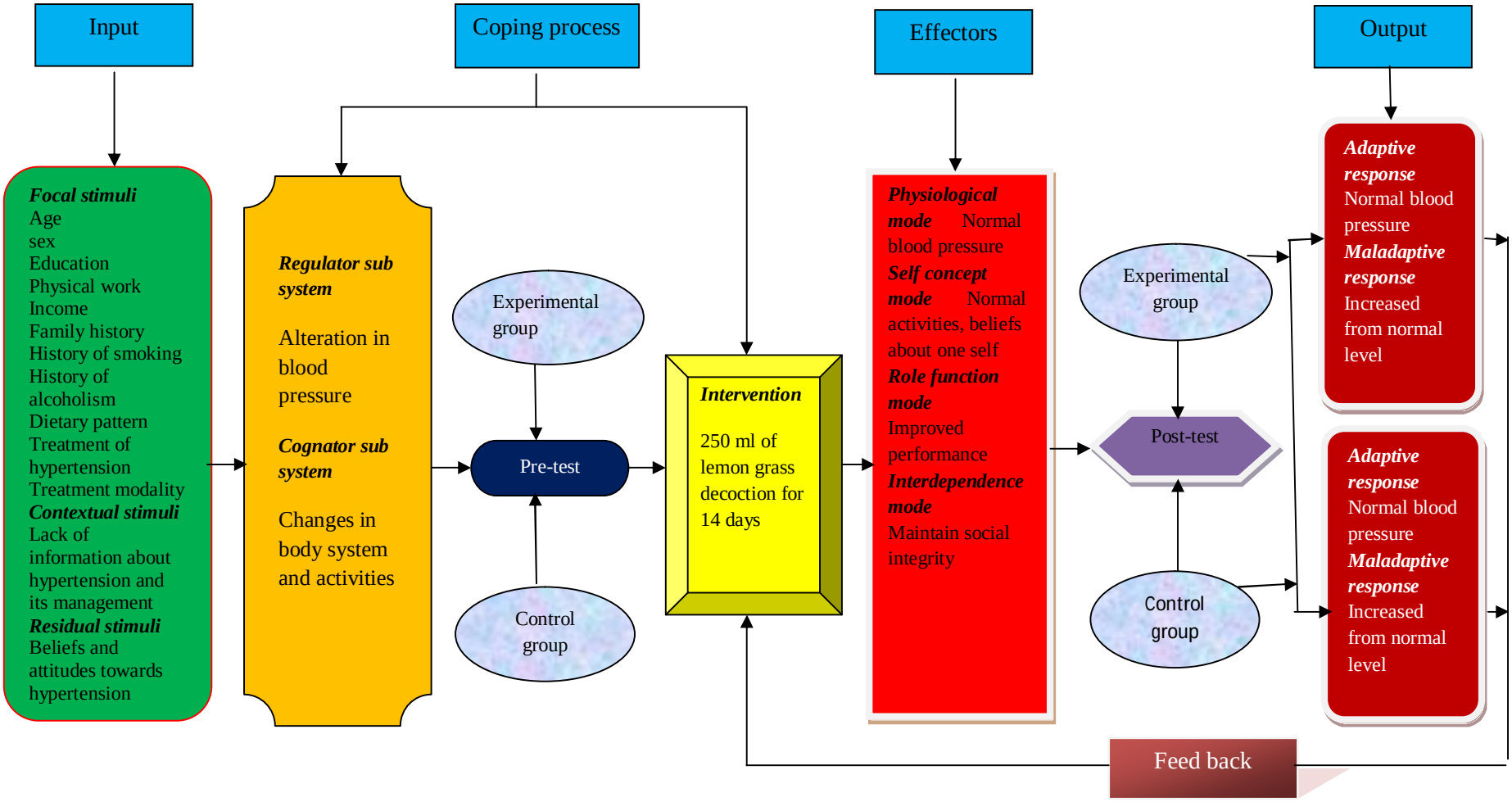


Figure:1 Modified Roy's Adaptation Model - 1984

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the methodology followed to assess the effectiveness of lemon grass decoction in reduction of blood pressure among individuals with hypertension.

RESEARCH APPROACH

An evaluatory approach is selected for this study.

RESEARCH DESIGN

The research design is True experimental pre-test and post-test control group design.

Groups	Pre-test	Intervention	Post-test
Experimental group	O1	X	O2
Control group	O1	-	O2

R - Randomization.

O1 - Pre-test assessment of systolic blood pressure.

X - Administration of lemon grass decoction, 250 ml for 14 days.

O2 - Post-test assessment of systolic blood pressure.

SETTING OF THE STUDY

Olathanni community area in Kerala.

POPULATION

The individuals with hypertension in age group between 31 –70 yrs of male and female.

Target population

Individuals with hypertension in the community area Olathanni.

Accessible population

Individuals with hypertension who were attending OPD at Perumpazhuthur PHC.

SAMPLE

The samples were individuals with hypertension who met the inclusion criteria.

SAMPLE SIZE

Sample size was 60; 30 individuals for experimental group and 30 samples for control group.

SAMPLING TECHNIQUE

Simple random sampling technique.

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

A permanent resident of Olathanni community area, Kerala.

Individuals who are diagnosed as hypertensive with systolic blood pressure above 130 mm Hg.

Patients age between 31-70yrs.

Both male and female.

Exclusion criteria

Individuals not willing to participate.

Individuals with acute co morbidities like renal disease, CVA, Myocardial Infarction.

Pregnancy induced hypertension.

VARIABLES

Dependent variable: Systolic blood pressure.

Independent variable: Lemon grass decoction.

DESCRIPTION OF THE DATA COLLECTION TOOL

It consists of 2 sections.

Section-1

Interview guide which consists of questions to collect the demographic data like age, sex, education, physical work, income, family history of hypertension, history of smoking, history of alcoholism, dietary pattern, treatment of hypertension and treatment modality.

Section-2

This consists of a bio physiological measure for checking the blood pressure. Calibrated Sphygmomanometer was used for the study purpose.

GRADING

It was planned to grade the data obtained as per 6th report of the Joint National Committee on Prevention, Detection, Evaluation, Treatment of High Blood Pressure (JNC-VI) classification of blood pressure and the classification is as follows.

CLASSIFICATION

Sl. No	Systolic blood pressure	Category of blood pressure
1	<130	Normal
2	130-139	High normal
3	140-159	Stage 1 hypertension
4	160-179	Stage 2 hypertension
5	>180	Stage 3 hypertension

CONTENT VALIDITY

The content validity of the tool was obtained from Medical Officer and 4 experts in the field of nursing.

PILOT STUDY

In order to check the feasibility, relevance and practicability of the study Pilot study was conducted in community area Kerala for the period of

one week from 11-06-2013 to 17-06-2013 on 6 patients with high blood pressure with the permission of Medical Officer. Among that, 3 patients were selected for experimental group and 3 patients for control group. Result showed that study was feasible to carry out.

DATA COLLECTION PROCEDURE

The data collection was done after getting permission from Medical Officer. According to the inclusion and exclusion criteria simple random technique was used to select subjects. The purpose of the study explained to the participants and obtained consent. After randomization, for control group 30 samples were recruited and pre-test blood pressure recorded. No intervention was given for the study period. For experimental group 30 samples were selected, pre-test blood pressure recorded and administered 250 ml of lemon grass decoction for 14 days once in a day and recorded post-test blood pressure on 14^{th} day with the same Sphygmomanometer at the same time.

PLAN FOR DATA ANALYSIS

It was planned to use descriptive and inferential statistics.

DATA ANALYSIS AND STATISTICAL METHOD

DESCRIPTIVE

Frequency percentage

To describe the demographic variables of individuals with hypertension.

Mean, Standard Deviation

To assess the pre-test and post-test level of blood pressure among individuals with hypertension.

INFERENTIAL

Paired 't' test

Compare the level of blood pressure of pre-test and post-test for individuals in the same group.

Independent 't' test

Compare the post-test level of blood pressure, to know effectiveness of lemongrass decoction.

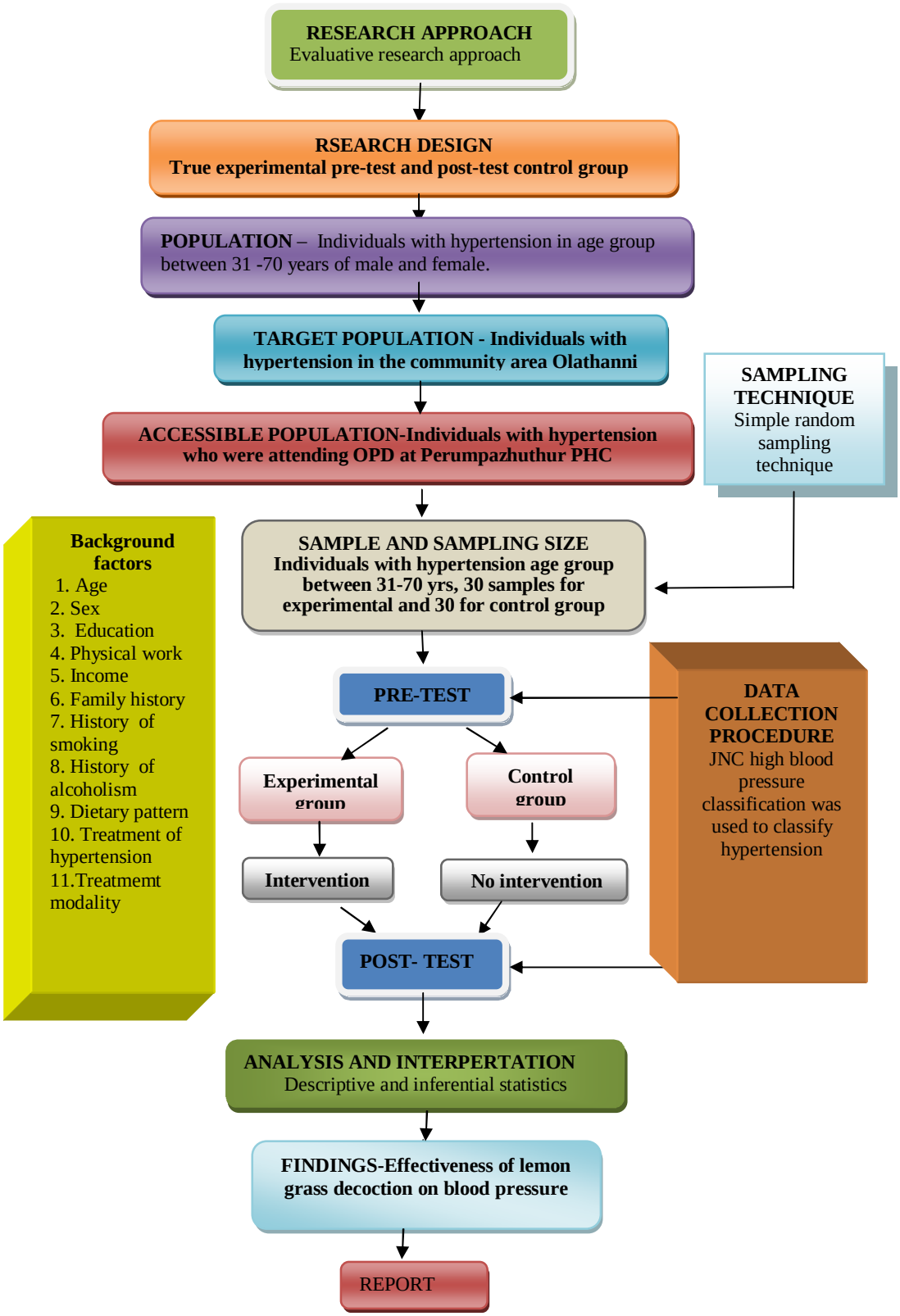
Chi – square test

To find out the association between selected demographic variables and post-test level of blood pressure.

PROTECTION OF HUMAN RIGHTS

The proposed study was conducted after the approval of research committee of the college. Permission was sought from the Medical Officer. The written consent of each individual was obtained before data collection. Assurance was given to the study participants regarding the confidentiality of the data collection.

SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY



CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data related to the effectiveness of lemon grass decoction on blood pressure among individuals with hypertension in community area, Kerala. The data collected were grouped, tabulated, analyzed and organized based on the objectives of the study presented below.

Section I

Description of demographic variables of individuals with hypertension.

Section II

a) Pre-test and post-test level of systolic blood pressure among individuals with hypertension receiving lemon grass decoction in experimental group.

b) Pre-test and post-test level of systolic blood pressure among individuals with hypertension in the control group.

Section III

a) Comparison of mean and standard deviation of pre and post-test blood pressure among individuals with hypertension in the experimental group.

b) Comparison of mean and standard deviation of pre and post-test blood pressure among individuals with hypertension in the control group.

c) Comparison of mean and standard deviation of post-test blood pressure among individuals with hypertension in experimental and control group.

Section IV

Association of post-test level of blood pressure among individuals with hypertension in experimental group with their selected demographic variables.

Section I

Table 1 Frequency and percentage distribution of demographic variables of individuals with hypertension in experimental and control group

(N=60)

Sl. No	Demographic Variables	Experimental group		Control group	
		F	%	F	%
1	**Age in years**				
	31 – 40	5	16.67	3	10.00
	41 – 50	8	26.67	2	6.67
	51 – 60	6	20.00	10	33.33
	61 – 70	11	36.67	15	50.00
2	**Sex**				
	Male	8	26.67	7	23.33
	Female	22	73.33	23	76.67
3	**Education**				
	Illiterate	4	13.33	5	16.67
	Primary education	9	30.00	9	30.00
	Secondary education	8	26.67	8	26.67
	Higher secondary	4	13.33	3	10.00
	Graduate	5	16.67	5	16.67
4	**Physical work**				
	Sedentary work	11	36.67	15	50.00
	Moderate work	9	30.00	7	23.33
	Heavy work	10	33.33	8	26.67
5	**Income**				
	< Rs.5,000/-	15	50.00	14	46.67
	Rs.5,001/- - Rs.10,000/-	9	30.00	9	30.00
	>Rs.10,001/-	6	20.00	7	23.33

Sl. No	Demographic Variables	Experimental group		Control group	
		F	%	F	%
6	**Family history of hypertension**				
	Yes	15	50.00	14	46.67
	No	15	50.00	16	53.33
7	**History of smoking**				
	Yes	6	20.00	5	16.67
	No	24	80.00	25	83.33
8	**History of alcoholism**				
	Yes	5	16.67	5	16.67
	No	25	83.33	25	83.33
9	**Dietary Pattern**				
	Vegetarian	11	36.67	8	26.67
	Non -vegetarian	19	63.33	22	73.33
10	**Treatment of hypertension**				
	Regular	13	43.33	17	56.67
	Irregular	17	56.67	13	43.33
11	**Treatment modality**				
	Anti hypertensive	11	36.67	12	40.00
	Lifestyle modification	2	6.67	7	23.33
	Both	13	43.33	7	23.33
	Nil	4	13.33	4	13.33

Table 1 reflects the frequency and percentage distribution of demographic variables of individuals with hypertension in experimental and control group.

- Majority of the subjects 11(36.67%) in experimental group and 15(50.00%) in control group belongs to the age group of 61-70 years.
- Majority of the samples 22 (73.33%) in experimental group and 23 (76.67%) in the control group were female.
- Majority in both groups, 9(30.00%) had primary education.
- Majority of the samples 11(36.67%) in experimental group and 15(50.00%) in control group were doing sedentary physical work.
- Majority 15(50.00%) in experimental group and 14 (46.67%) in control group had income below Rs.5,000/-
- Majority 15(50.00%) in experimental had family history of hypertension and 16 (53.33) in control group had no family history of hypertension.
- Majority of the samples 24 (80.00%) in experimental group and 25 (83.33%) in the control group were non smokers.
- Majority 25 (83.33%) in both groups were not alcoholic.
- Majority 19(63.33%) in experimental group and 22(73.33%) in control group were non-vegetarian.
- Majority 17(56.67%) in experimental group had irregular treatment and 17(56.67%) in control group had regular treatment.
- Majority 11(43.33%) in experimental group and 12(40.00%) in control group were treated with anti hypertensive.

Figure 2.1 Percentage distribution of age of the individuals with hypertension

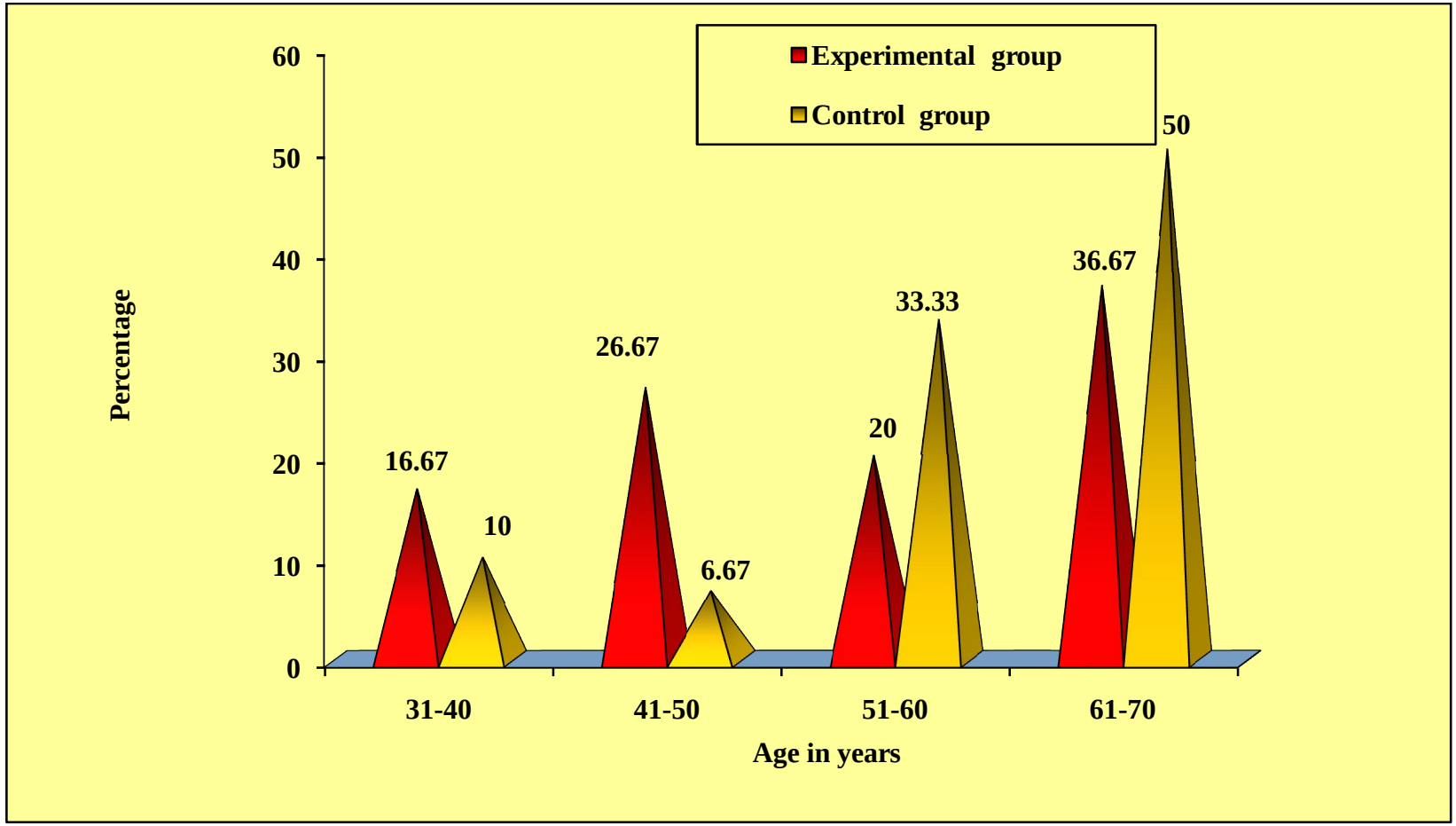


Figure 2.2 Percentage distribution of sex of the individuals with hypertension

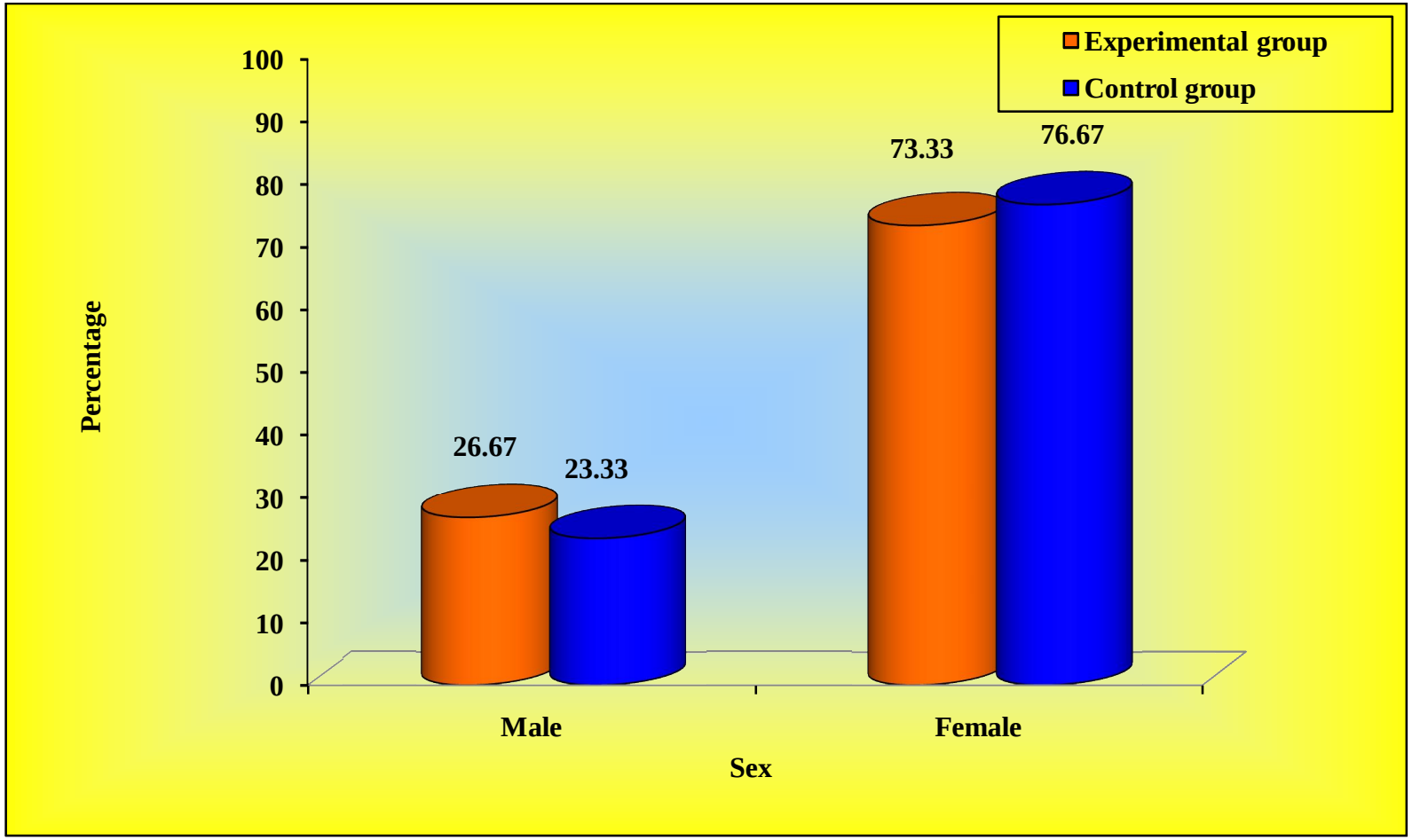


Figure 2.3 Percentage distribution of history of smoking of the individuals with hypertension

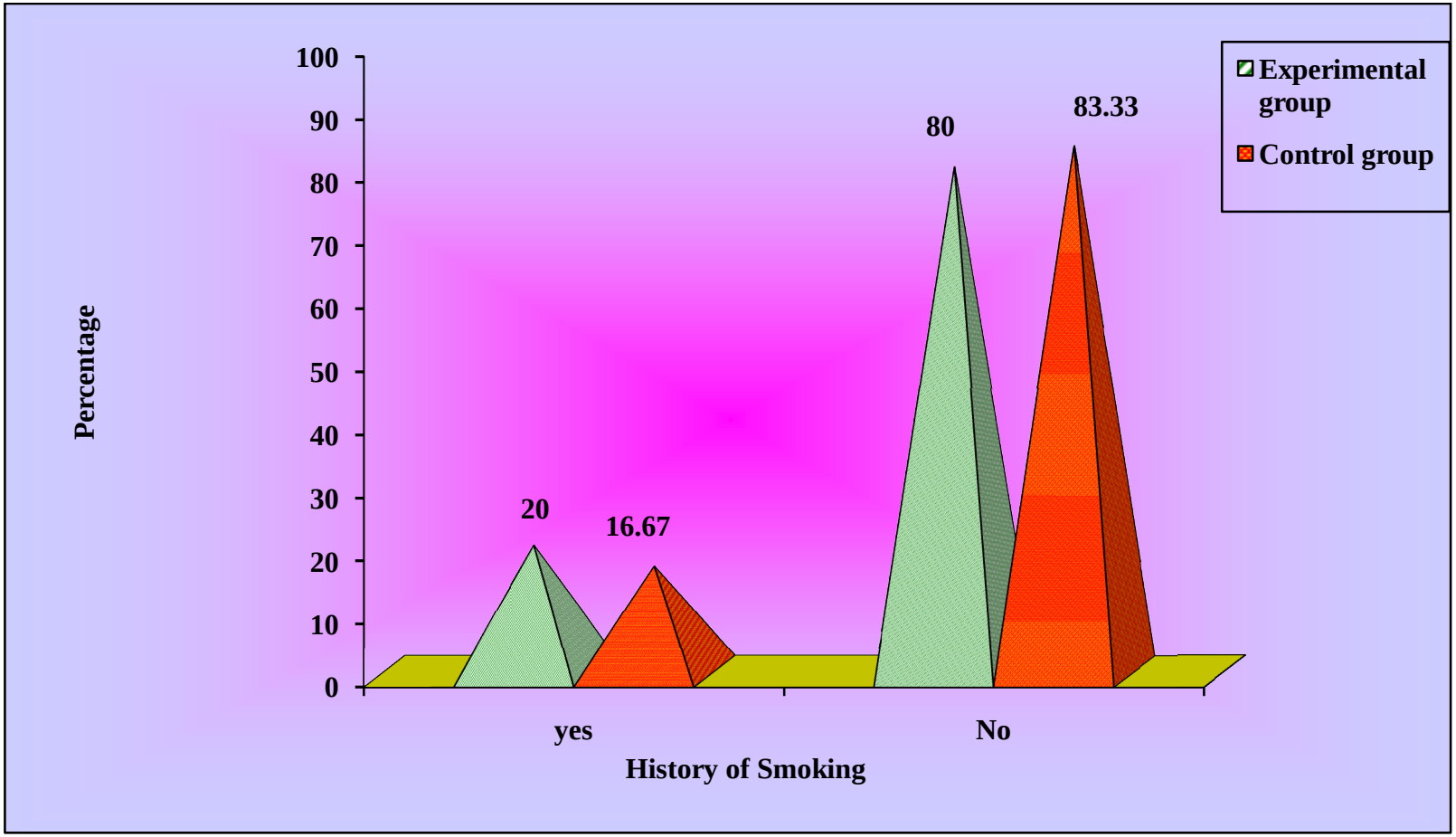


Figure 2.4 Percentage distribution of history of alcoholism of the individuals with hypertension

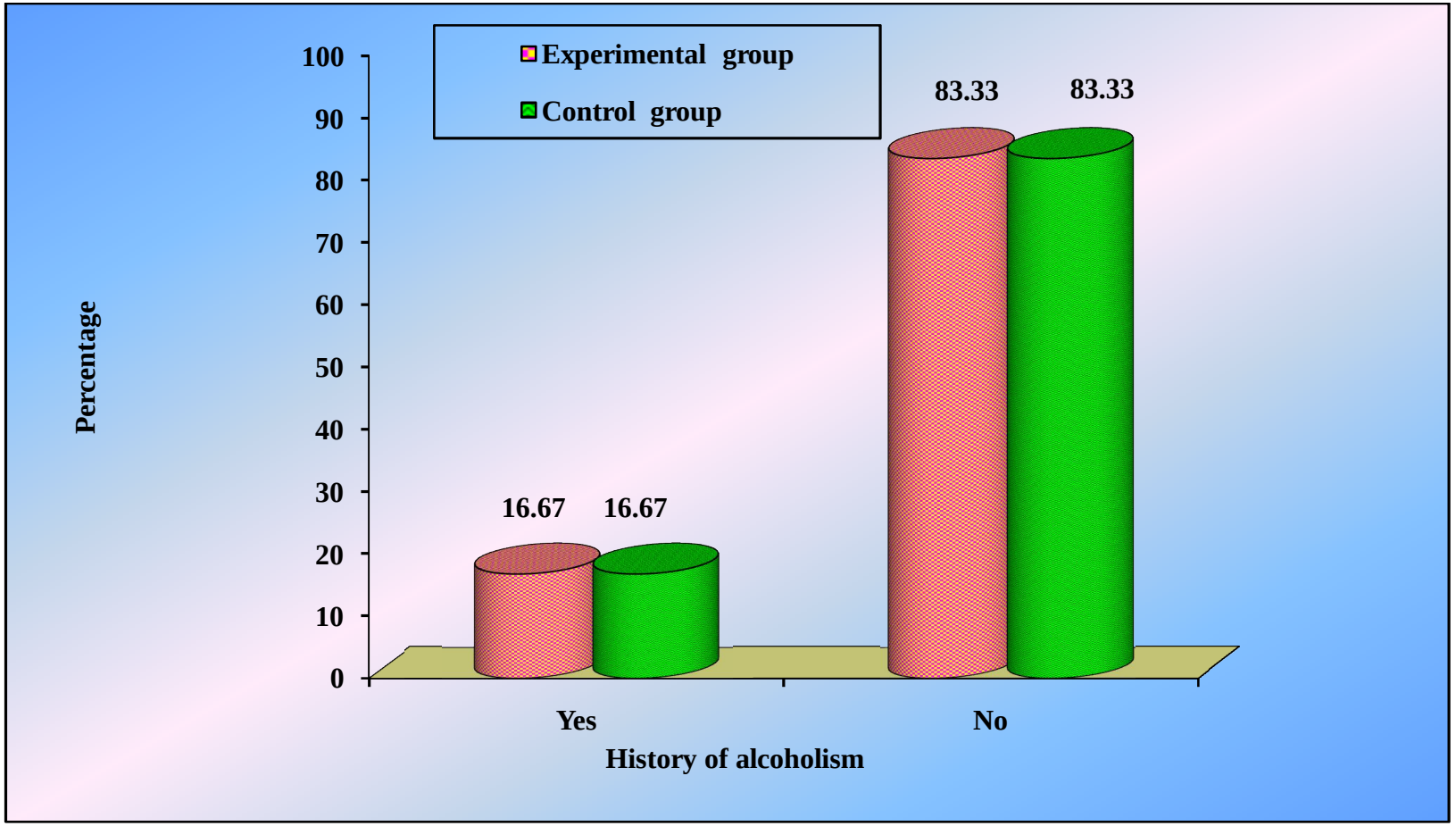
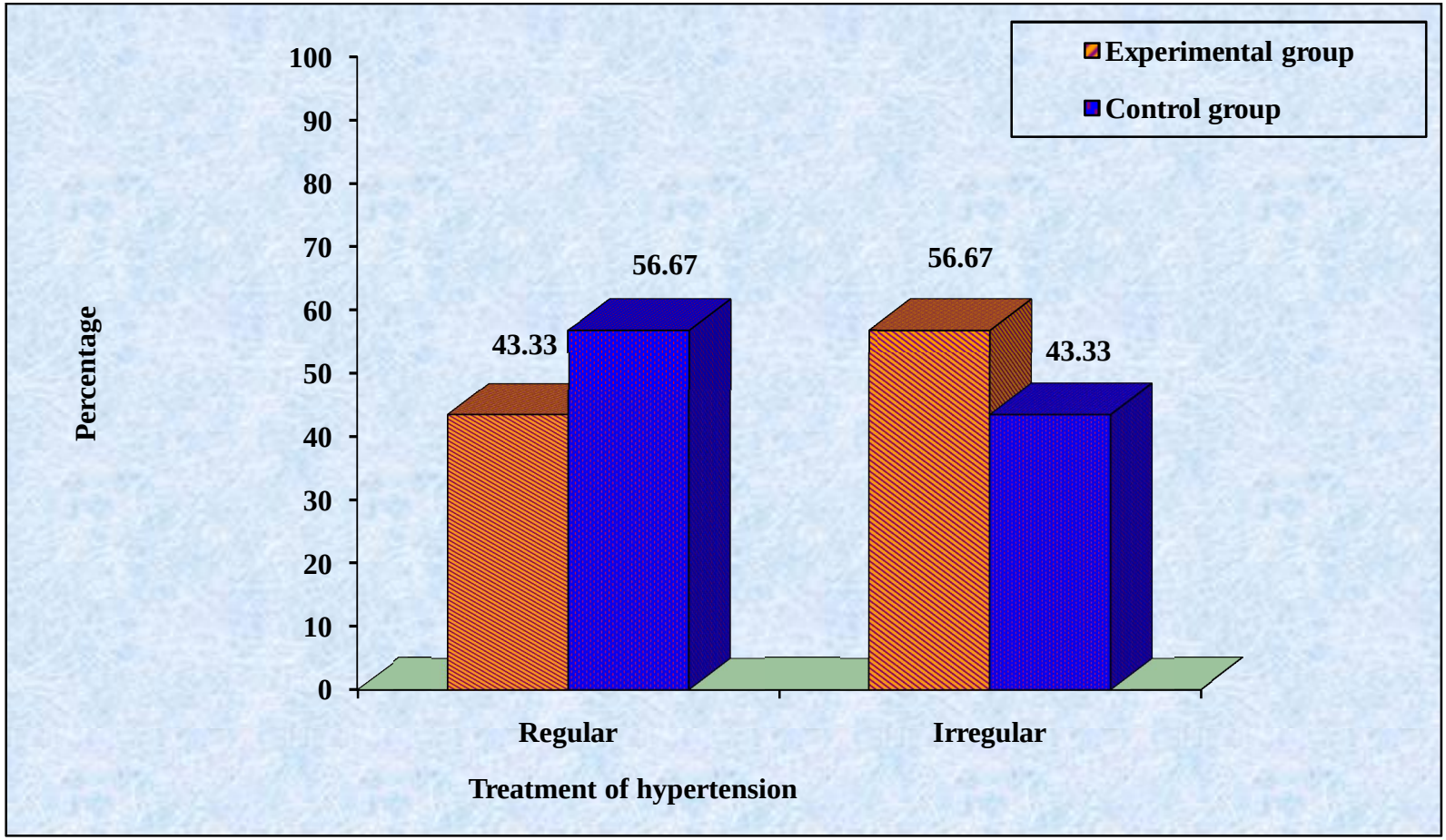


Figure 2.5 Percentage distribution of treatment of hypertension of the individuals with hypertension



Section II

Table 2 Pre-test and post-test level of systolic blood pressure among individuals with hypertension in the experimental group

Category of blood pressure	Pre test		Post test	
	F	%	F	%
Normal	1	3.33	13	43.33
High normal	6	20.0	12	40.0
Stage1 hypertension	19	63.33	3	10.0
Stage2 hypertension	2	6.7	1	3.3
Stage3 hypertension	2	6.7	1	3.3

Table 2 depicts majority of the samples in pre-test 19(63.33%) had stage 1 hypertension and the next majority 6(20%) had high normal blood pressure. In post-test, majority 13 (43.33%) had normal, and next majority 12 (40.0%) had high normal blood pressure.

Table 3 Pre-test and post-test level of systolic blood pressure among individuals with hypertension in the control group.

Category of blood pressure	Pre-test		Post-test	
	F	%	F	%
Normal	2	6.7	1	3.3
High normal	4	13.33	7	23.33
Stage1 hypertension	20	66.67	19	63.33
Stage2 hypertension	2	6.7	2	6.67
Stage3 hypertension	2	6.7	1	3.33

Table 3 represents the pre-test level of blood pressure 20 (66.67%) under stage 1hypertension. In post-test also the majority remained in the same category stage 1 hypertension, 19 (63.33%).

Section III

Table 4 Comparison of mean systolic blood pressure and standard deviation in pre-test and post- test among individuals with hypertension in the experimental group

Category of blood pressure	Mean blood pressure	S.D	Mean Diff.	't' Value
Pre-test	143.67	13.51	14.33	t = 7.109*** p = 0.001, S
Post-test	129.33	13.11		

***p<0.001, S – Significant

Table 4 illustrates the pre-test mean systolic blood pressure was 143.67 with standard deviation of 13.51 and the post-test mean systolic blood pressure was 129.33 with standard deviation of 13.11.The mean difference was 14.33 and the calculated 't' value was 7.109 which showed that there was a significant difference between the pre and post-test level of blood pressure among individuals with hypertension in experimental group at p<0.001 level.

Table 5 Comparison of mean systolic blood pressure and standard deviation in pre-test and post-test among individuals with hypertension in the control group

Blood Pressure	Mean	S.D	Mean Diff.	't' Value
Pre-test	143.33	13.73	1.33	t = 0.812
Post-test	142.00	12.43		p = 0.001, N.S

N.S – Not Significant

Table 5 delineates the obtained pre-test mean systolic blood pressure was 143.33 with the standard deviation of 13.73 and the post-test mean systolic blood pressure was 142.00 with the standard deviation of 12.43.The mean difference was 1.33 and the calculated 't' value was 0.812 which showed that there was no significant difference between the pre and post-test systolic blood pressure among individuals with hypertension in control group at $p<0.001$ level.

Figure 3.1 **Comparison of mean systolic blood pressure in pre-test and post-test among individuals with hypertension in the experimental group and control group.**

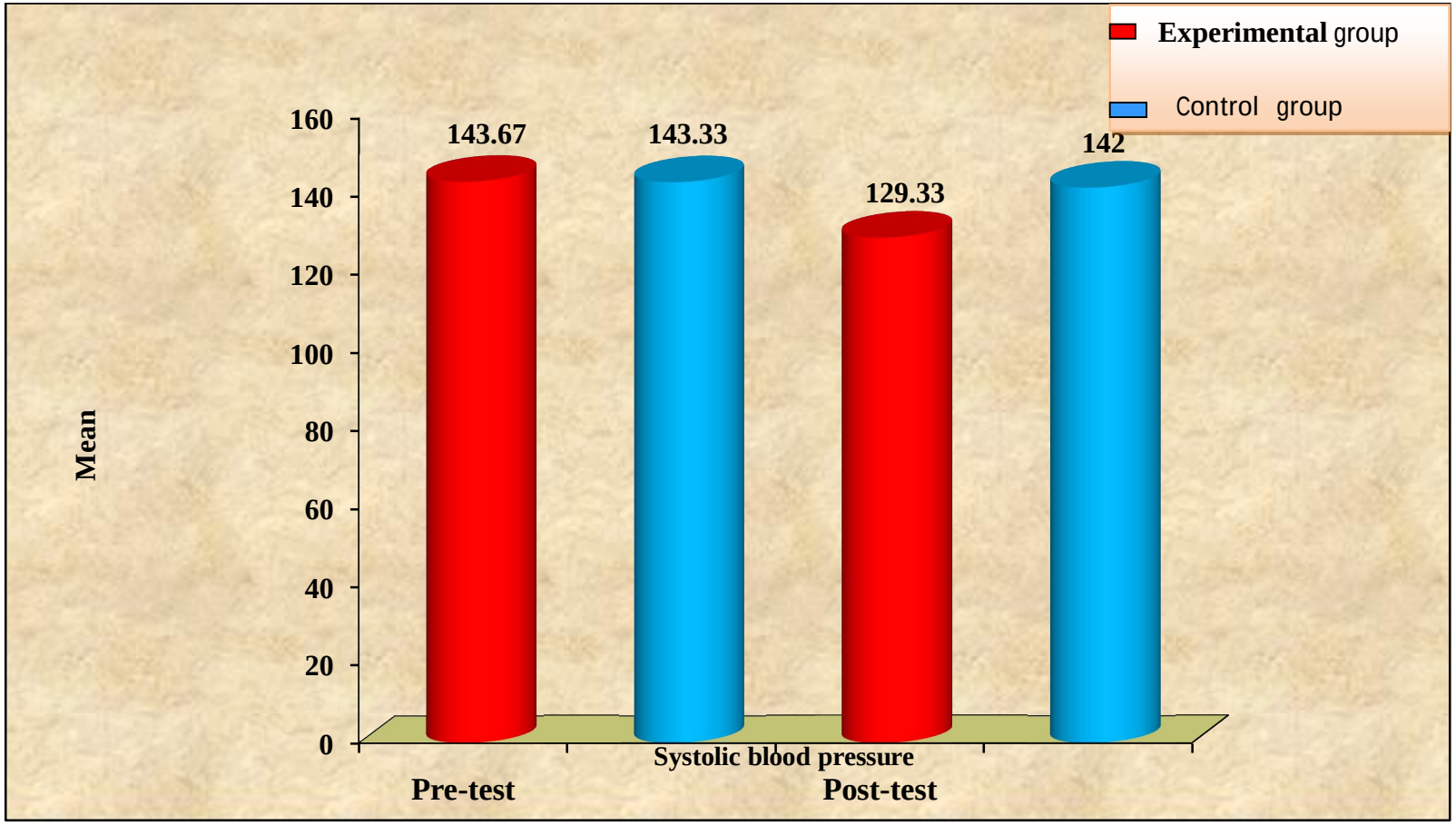


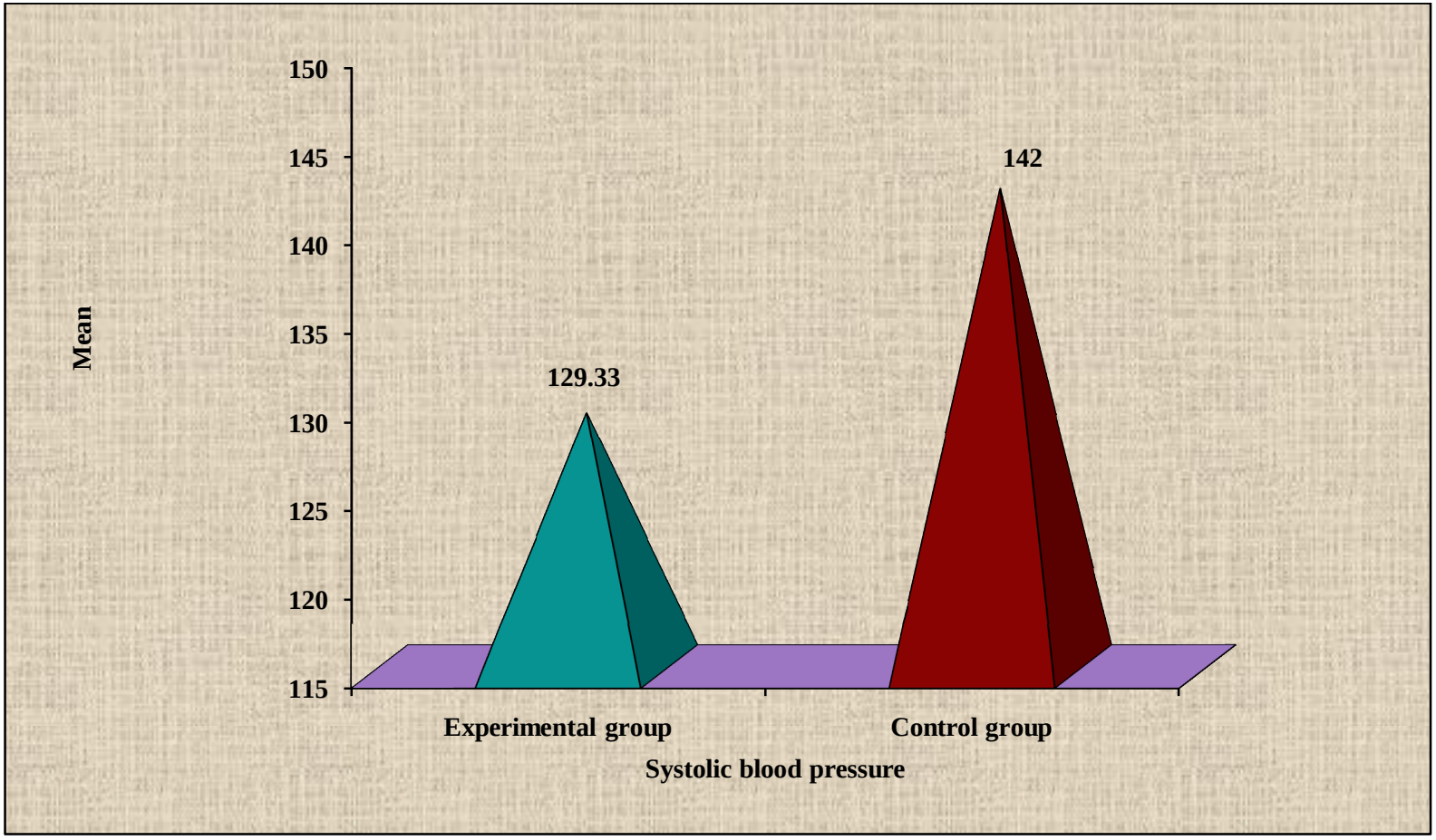
Table 6 Comparison of mean systolic blood pressure and standard deviation in the post-test among individuals with hypertension in experimental and control group

Post test blood pressure	Mean	S.D	Mean Diff.	't' value
Experimental group	129.33	13.11	12.67	t = 3.840***
Control group	142.00	12.43		p = 0.001, S

***p<0.001, S – Significant

In experimental group mean systolic blood pressure was 129.33 with the standard deviation of 13.11. In control group, mean systolic blood pressure was 142.00 with standard deviation of 12.43. The 't' value was 3.840 indicating that there was a significant difference in post-test level of systolic blood pressure in experimental and control group at p<0.001 level.

Figure 3.2 Comparison of mean systolic blood pressure in post test among individuals with hypertension between the experimental and control group



Section IV

Table 7 Association of post-test level of systolic blood pressure with selected demographic variables among individuals with hypertension in the experimental group.

(N =60)

Sl. No	Demographic variables	Normal	High normal	Stage1 hyper tension	Stage 2 hyper tension	Stage 3 hyper tension	Chi-square value
1.	**Age in years**						
	31-40	1	4	0	0	0	χ^2 = 9.516 N.S
	41-50	4	2	1	0	1	
	51-60	2	3	1	0	0	
	61-70	6	3	1	1	0	
2.	**Sex**						χ^2 = 10.103 S*
	Male	3	1	2	1	1	
	Female	10	11	1	0	0	
3.	**Education**						
	Illiterate	2	1	1	0	0	χ^2 = 12.076 N.S
	Primary	3	4	1	1	0	
	Secondary	5	3	0	0	0	
	Higher secondary	1	2	1	0	0	
	Graduate	2	2	0	0	1	
4.	**Physical work**						
	Sedentary work	5	5	0	0	1	χ^2 = 6.752 N.S
	Moderate work	5	3	1	0	0	
	Heavy work	3	4	2	1	0	
5.	**Income**						
	< Rs.5,000	4	8	2	1	0	χ^2 = 11.342 N.S
	Rs.5,001-10,000	7	2	0	0	0	
	> Rs.10,001	2	2	1	0	1	

Sl. No	Demographic variables	Normal	High normal	Stage1hyper tension	Stage 2 hyper tension	Stage 3 hyper tension	Chi-square value
6.	**Family history of hypertension**						χ^2 = 5.590 N.S
	Yes	4	8	2	1	0	
	No	9	4	1	0	1	
7.	**History of smoking**						χ^2 = 9.527 S*
	Yes	2	1	2	1	0	
	No	11	11	1	0	1	
8.	**History of alcoholism**						χ^2 = 13.015 S*
	Yes	2	0	1	1	1	
	No	11	12	2	0	0	
9.	**Dietary pattern**						χ^2 = 3.528 N.S
	Vegetarian	7	3	1	0	0	
	Non-vegetarian	6	9	2	1	1	
10.	**Treatment of hypertension**						χ^2 = 2.250 N.S
	Regular	6	5	1	0	1	
	Irregular	7	7	2	1	0	
11.	**Treatment modality**						χ^2 = 11.558 N.S
	Anti hypertensive	6	4	1	0	0	
	Life style modification	1	1	0	0	0	
	Both	2	7	2	1	1	
	Nil	4	0	0	0	0	

*p<0.001, S – Significant, N.S – Not Significant

Through the findings, there was a significant association found between the post-test level of systolic blood pressure and sex, history of smoking and history of alcoholism. There was no association found between the demographic variables of age, education, physical work, income, family history of hypertension, dietary pattern, treatment of hypertension, and treatment modality among individuals with hypertension in experimental group at $p<0.001$ level and post-test level of systolic blood pressure.

CHAPTER V

DISCUSSION

This chapter reveals the discussion of the data analyzed based on the objectives and hypotheses of the study. The problem stated that, “An experimental study to assess the effectiveness of lemongrass decoction in reduction of blood pressure among individuals with hypertension in a selected community area, Kerala”. The findings of the study have been discussed with reference to objectives, the frame work, and hypotheses of this study.

The first objective of the study was to assess the level of blood pressure among individuals with hypertension.

In experimental group, pre-test assessment of blood pressure revealed that 1(3.33%) had normal, 6(20.0%) had high normal, 19(63.33%) had stage 1, 2(6.7) had stage 2 and 2 (6.7%) had stage 3 hypertension. Post-test assessment showed 13(43.33%) had normal, 12(40.0%) had high normal, 3(10.0%) had stage 1, 1(3.3%) had stage 2 and 1(3.3%) had stage 3 hypertension.

In control group, pre-test assessment revealed that 2(6.7%) had normal, 4(13.33%) had high normal, 20(66.67) had stage 1, 2(6.7%) had stage 2 and 2(6.7%) had stage 3 level of systolic blood pressure. Post-test assessment showed 1(3.3%) had normal, 7 (23.33%) had high normal, 19(63.33%) had stage 1, 2(6.67%) had stage 2, and 1(3.33%) had stage 3 level of systolic blood pressure.

The second objective of the study was to assess the effectiveness of lemon grass decoction in reduction of blood pressure among individuals with hypertension in experimental and control group.

In experimental group the post-test mean systolic blood pressure was 129.33 with standard deviation of 13.11. In control group the post-test mean systolic blood pressure was 142.00 with the standard deviation of 12.43. The calculated 't' value was 3.840 indicating that there was a significant difference in post-test level of blood pressure in experimental and control group at $p<0.001$ level. Based on the study findings the stated hypothesis H_1 there will be significant reduction in the level of blood pressure after intake of lemon grass decoction among individuals with hypertension was accepted.

The third objective of the study was to find association between post-test level of blood pressure and selected demographic variables of experimental group.

Association findings revealed that there was a significant association between sex, history of smoking, history of alcoholism and post test level of systolic blood pressure. There was no significant association between the post-test level of blood pressure and demographic variables of age, education, physical work, income, family history of hypertension, dietary pattern, treatment of hypertension and treatment modality in experimental group with their demographic variables at $p<0.001$ level. Hence the stated hypothesis H_2 there will be a significant association between post-test level of blood pressure and selected demographic variables of individuals with hypertension who consumed lemon grass decoction was not accepted.

CHAPTER VI

SUMMARY, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSION

This chapter is divided into two sections; the first section included summary, findings and conclusion of the study. The second section included implications in various areas of nursing practice, nursing education, nursing administration, nursing research and recommendations for further study.

SUMMARY OF THE STUDY

The objectives of the study were to assess the effectiveness of lemon grass decoction in reduction of blood pressure among individuals with hypertension in experimental and control group and to find out the association between post-test level of blood pressure in experimental group and their selected demographic variables. The major assumptions of the study included lemon grass decoction decreases blood pressure and is a diuretic it has the ability to reduce blood volume by increasing urine output there by reduces the blood pressure.

The research approach adopted for this study was evaluative in nature. The present study was an experimental study, and the design was true experimental pre-test and post-test control group design. The study was conducted in a selected community, Kerala with 60 samples. The findings revealed that the experimental group mean systolic blood pressure 129.33 was lesser than the control group mean systolic blood pressure 142.00.The obtained ‘t’ value was 3.840, significant at 0.001 level. There was a significant association found between sex, history of smoking and history of alcoholism and post test level of systolic blood pressure in experimental group and there was no significant association found between age, education,

physical work, income, family history of hypertension, dietary pattern, treatment of hypertension and treatment modalities with post test level of systolic blood pressure in experimental group.

Major findings of the study

- Majority of the subjects 36.67% in experimental group and 50.00% in control group belongs to the age group of 61-70 years.
- Majority of the samples 73.33% in experimental group and 76.67% in the control group were female.
- Majority in both groups, 30.00% had primary education.
- Majority 36.67% in experimental group and 50.00% in control group were doing sedentary physical work.
- Majority in both groups, 50.00% in experimental group and 46.67% in control group had income below Rs.5,000/-
- Majority 50.00% in experimental had family history of hypertension and 53.33% in control group had no family history of hypertension.
- Majority of the samples 80.00% in experimental group and 83.33% in the control group were non smokers.
- Majority 83.33% in both groups were not alcoholic.
- Majority 63.33% in experimental group and 73.33% in control group were non-vegetarian.
- Majority 56.67% in experimental group had irregular treatment and 56.67% in control group had regular treatment.
- Majority 43.33% in experimental group and 40.00% in control group were treated with anti hypertensive.

II. Findings related to study intervention

1) In pre-test 63.33% had stage 1 hypertension in experimental group and 66.67% had stage 1 hypertension in control group.
2) In experimental group 43.33% had normal blood pressure and 63.33% had stage 1 hypertension during post-test.
3) In experimental group, the pre-test mean systolic blood pressure was 143.67 and post-test mean was 129.33. The calculated‘t’ value was 7.109 and it was significant at $p<0.001$ level.
4) In control group, the pre-test mean systolic blood pressure was 143.33 and post-test mean was 142.00.The calculated ‘t’ value was 0.812 and it was not significant at $p<0.001$ level.
5) In post-test the mean systolic blood pressure 129.33 in experimental group was less than the mean systolic blood pressure 142.00 of control group. The calculated‘t’ value was 3.840 significant at $p< 0.001$ level.
6) The association of post-test level of systolic blood pressure was significant with sex, history of smoking, history of alcoholism while the age, education, physical work, income, family history of hypertension, dietary pattern, treatment of hypertension, treatment modality had no association.

IMPLICATIONS

The following implications, which are of vital concern in the field of nursing practice, nursing education, nursing administration and nursing research is derived from the study. The findings of the present study supports that, lemon grass is very safe, low cost and almost is not harmful to health.

Implications for Nursing Practice

- The findings of the study revealed that lemon grass decoction can be used to maintain normal blood pressure.
- The study result help the nursing personnel include lemon grass decoction as a nursing intervention in the management of hypertension.

Implications for Nursing Education

- The effectiveness of lemon grass in reduction of blood pressure is to be published in the nursing journal to make awareness among the nursing students.
- This study result can be used as an example by the nurse educator while teaching about care of individuals with hypertension.
- Educate the students about various treatment modalities for hypertension and ensure adequate clinical exposure to the students.

Implications for Nursing Administration

- The nurse educator can make awareness among staff nurses about significance of lemon grass on hypertension through in-service and continuing nursing education.
- Update their knowledge about current practices and treatment through conferences, seminars regarding hypertension.
- Health teaching to care givers and visitors of patients should be insisted as one of the responsibility of nursing personnel.

Implications for Nursing Research

- The nurse researcher can do more research and reveal its result through workshops or scientific presentation.
- Nurse researcher has to conduct the research by comparing the lemon grass decoction with other complimentary therapies.
- Nurse researcher can do this study with large population to generalize the findings.

RECOMMENDATIONS

The study recommends the following for future research,

- The study can be replicated by taking larger sample.
- A longitudinal study can be conducted to assess the effectiveness of lemon grass decoction in maintaining normal blood pressure.
- The same study can be done in multiple settings.
- A follow up study can be conducted to find out whether the patients are practicing intake of lemon grass decoction to maintain the normal blood pressure.

CONCLUSION

The purpose of the study was to assess the effectiveness of lemon grass decoction in reduction of blood pressure among individuals with hypertension in selected community area, Kerala. From the above findings, it is evident that lemon grass decoction is effective and can serve as an alternative maintenance medication for individuals with hypertension.

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ANNEXURE I

LETTER SEEKING EXPERT'S OPINION FOR

CONTENT VALIDITY

From

301211708
II Year M.Sc. (Nursing)
Thanthai Roever College of Nursing
Perambalur.

To:

Respected Sir/madam,

Sub: Requisition for content validity of tool.

I am doing II Year M.Sc. (Nursing) in Thanthai Roever College of Nursing, Perambalur, under The Tamil Nadu, Dr.M.G.R. Medical University Chennai. As a partial fulfillment of my M.Sc. (Nursing) Degree Programme, I am conducting a research on "**AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF LEMONGRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA".** I am sending the content of the above stated for your expert and valuable opinion, I will be thankful for your kind consideration. Kindly return it to the undersigned.

Thanking you

Place: Yours sincerely,

Date: **301211708**

ANNEXURE II

LIST OF EXPERT'S OPINION FOR CONTENT VALIDITY OF RESEARCH TOOL

1. **Dr.Praveen Raj. D.S. MBBS**
   Reg.no:41628
   Medical Officer, Assistant Surgeon,
   Primary Health Center,
   Perumpazhuthur.

2. **Dr.Rajina Rani M.Sc. (N) PhD**
   Principal,
   Doctor's College of Nursing
   Pudhukottai.

3. **Prof. R.Punithavathi M.Sc. (N)**
   Principal,
   Thanthai Roever College of Nursing
   Perambalur.

4. **Prof. V.J. Elizabeth. M.Sc. (N)**
   Vice-Principal,
   Thanthai Roever College of Nursing
   Perambalur

5. **Prof. Jasmine Parimala. M.Sc. (N)**
   Principal,
   C.S.I Eliza Caldwell College of Nursing
   Thesiyanvilai.

6. **Prof. Angel Priya. M.Sc. (N)**
   Principal,
   The Salvation Army Catherine Booth College of Nursing
   Nagercoil

ANNEXURE III

EVALUATION CRITERIA CHECK LIST FOR VALIDATION

INTRODUCTION

The expert is requested to go through the following criteria for evaluation. Three columns are given for response and a column for the remark. Place tick mark in the appropriate column and given remarks.

INTERPRETATION OF COLUMN:

Column I : Meets the criteria.
Column II : Partially meets the criteria.
Column : Does not meet the criteria.

Sl. No	Criteria	1	2	3	Remarks
1	Scoring - Adequacy - Clarity - Simplicity				
2	Content - Logical sequence - Adequacy - Relevance				
3	Language - appropriate - clarity - simplicity				
4	Practicability - It is easy to score - Does it precisely - Utility				

Signature :

Name :
Designation :
Address

Any other suggestion

ANNEXURE IV

PERMISSION LETTER FOR RESEARCH PURPOSE

From

301211708
II Year M.Sc. (Nursing)
Thanthai Roever College of Nursing,
Perambalur.

Through

The Principal
Thanthai Roever College of Nursing,
Perambalur.

To

The Medical Officer
Primary Health Center,
Perumpazhuthur.

Respected Madam / Sir,

I am doing II year M.Sc. (Nursing) in Thanthai Roever College of Nursing Perambalur, under The Tamilnadu Dr. M.G.R. Medical University Chennai. As a partial fulfillment of my M.Sc.(Nursing) Degree Programme, I am going to conduct a study "**AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF LEMONGRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA".** I would like to select your village for my data collection, as I understand that I may get many patients with hypertension in your village. Hence I kindly request you to grant me permission to conduct my study in your
village. Thanking you.

Place: Yours sincerely,

Date: (301211708)

ANNEXURE V (A)

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work " **AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF LEMON GRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA"** done by 301211708 II year M.Sc. Nursing, in Thanthai Roever College of Nursing, Perambalur is edited for English language appropriateness by Mr. R.Brahmasuthan, Head Master Govt. GHSS Neyyattinkara.

Signature

ANNEXURE V (B)

CERTIFICATE OF MALAYALAM EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work " **AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF LEMONGRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA"**done by 301211708 II year M.sc Nursing, in Thanthai Roever College of Nursing , Perambalur is edited for Malayalam language appropriateness by Mr. S.Rajendran, Head Master, Govt. BHSS Neyyattinkara.

Signature

ANNEXURE VI (A)

INFORMED WRITTEN CONSENT

I, _____ , have attended the presentation of the entitled,

AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF LEMON GRASS DECOCTION IN REDUCTION OF BLOOD PRESSURE AMONG INDIVIDUALS WITH HYPERTENSION IN SELECTED COMMUNITY AREA, KERALA.

The study has been fully explained to me by the researcher to my understanding by the researcher and I am affixing my signature to signify my willingness to include myself as a respondent.

Respondent,

_____

Signature

Researcher,

_____

Signature

ANNEXURE VI (B)

സമ്മതപത്രം

ഞാൻ, ... നിശ്ചിത സാമൂഹിക മേഖലയിലെ അതിരക്ത സമ്മർദ്ധമുള്ള വ്യക്തികളിൽ ഇഞ്ചിപുല്ല് കഷായത്തിന്റെ പരിണിതഫലം വിലയിരുത്തുന്ന ഗവേഷണ പരിശോധനയിൽ പങ്കെടുക്കുകയുണ്ടായി.

ഈ പഠനത്തെ കുറിച്ച് ഗവേഷക എനിയ്ക്ക് പൂർണ്ണമായി വിശദീകരിച്ച് തരികയുണ്ടായി. എനിയ്ക്ക് ഇതിൽ പങ്കെടുക്കുന്നതിന് സമ്മതമാണെന്നുള്ളതിനുള്ള തെളിവിനായി എന്റെ കൈയ്യൊപ്പ് രേഖപ്പെടുത്തുന്നു.

പങ്കാളി	ഗവേഷക
.....	.....
ഒപ്പ്	ഒപ്പ്

ANNEXURE VII (A)

Data Collection Tool (English)

Demographic Variables: Mark (√) the appropriate options in the given boxes

1) Age in years

a) 31-40 [ ]

b) 41-50 [ ]

c) 51-60 [ ]

d) 61-70 [ ]

2) sex

a) Male [ ]

b) Female [ ]

3) Education

a) Illiterate [ ]

b) Primary education [ ]

c) Secondary education [ ]

d) Higher secondary [ ]

e) Graduate [ ]

4) Physical work

a) Sedentary work [ ]

b) Moderate work [ ]

c) Heavy work [ ]

5) Income

a) < Rs.5,000 /- [ ]

b) Rs.5,001 - 10,000 /- [ ]

c) > Rs.10,000 /- [ ]

6) Family history of hypertension

a) Yes [ ]

b) No [ ]

7) History of smoking

a) Yes [ ]

b) No [ ]

8) History of alcoholism

a) Yes [ ]

b) No [ ]

9) Dietary pattern

a) Vegetarian [ ]

b) Non vegetarian [ ]

10) Treatment of hypertension

a) Regular [ ]

b) Irregular [ ]

11)Treatment modality

a) Anti hypertensive [ ]

b) Life style modifications [ ]

c) Both [ ]

ANNEXURE VII (B)

വിഭാഗം-എ
വിലയിരുത്തൽ സൂചകങ്ങൾ

താഴെ കൊടുത്തിരിക്കുന്നതിൽ ശരിയായ ഉത്തരത്തിനു നേരെ(√) രേഖ പ്പെടുത്തുക.

1) വയസ്

എ) 31-40 ☐ ബി) 41-50 ☐ സി) 51-60 ☐ ഡി) 61-70 ☐

2) ലിംഗം

എ) പുരുഷൻ ☐ ബി) സ്ത്രീ ☐

3) വിദ്യാഭ്യാസം

എ) നിരക്ഷരൻ ☐ ബി) പ്രാഥമിക വിദ്യാഭ്യാസം ☐

സി) മദ്ധ്യമവിദ്യാഭ്യാസം ☐ ഡി) ഉന്നത വിദ്യാഭ്യാസം ☐ ഇ) ബിരുദം ☐

4) തൊഴിൽ

എ) തൊഴിൽ രഹിതൻ ☐ ബി) മിതമായ ജോലി ☐

സി) കഠിനമായ ജോലി ☐

5) വരുമാനം

എ)<5000/-രൂപ ☐ ബി) 5000-10,000/- രൂപ ☐ സി)>10,000/-രൂപ ☐

6) പാരമ്പര്യമായി കുടുംബത്തിൽ ആർക്കെങ്കിലും അതിരക്ത സമ്മർദ്ദമുണ്ടോ?

എ) ഉണ്ട് ☐ ബി) ഇല്ല ☐

7) പുകവലി ശീലമുണ്ടോ?

എ) ഉണ്ട് ☐ ബി) ഇല്ല ☐

8) മദ്യപാന ശീലമുണ്ടോ?

എ) ഉണ്ട് ☐ ബി) ഇല്ല ☐

9) ഭക്ഷണ രീതി

എ) സസ്യഭുക്ക് ☐ ബി) മിശ്രഭുക്ക് ☐

10) രക്ത സമ്മർദ്ധത്തിനുള്ള ചികിത്സ പിൻതുടരുന്നുണ്ടോ?

എ) പതിവായി ☐ ബി) പതിവല്ലാതെ ☐

11) ചികിത്സാ രീതികൾ

എ) അതിരക്ത സമ്മർദ്ദത്തിനെതിരെ ☐

ബി) ജീവിത ശൈലിയിലുള്ള മാറ്റങ്ങൾ (ഉപ്പ് രഹിത ആഹാരം) ☐

സി) രണ്ടിലും ☐